

What Is Claimed Is:

1. An isolated nucleic acid molecule comprising a polynucleotide having a nucleotide sequence at least 95% identical to a sequence selected from the group consisting of:

5 (a) a nucleotide sequence encoding a polypeptide comprising amino acids from about -20 to about 142 in SEQ ID NO:2;

10 (b) a nucleotide sequence encoding a polypeptide comprising amino acids from about -19 to about 142 in Figure 1 SEQ ID NO:2;

15 (c) a nucleotide sequence encoding a polypeptide comprising amino acids from about 1 to about 142 in SEQ ID NO:2;

(d) a nucleotide sequence encoding a polypeptide having the amino acid sequence encoded by the cDNA clone contained in ATCC Deposit No. 97825;

20 (e) a nucleotide sequence encoding the mature HOIPS I polypeptide having the amino acid sequence encoded by the cDNA clone contained in ATCC Deposit No. 97825; and

(f) a nucleotide sequence complementary to any of the nucleotide sequences in (a), (b), (c), (d) or (e).

25 2. An isolated nucleic acid molecule comprising a polynucleotide which hybridizes under stringent hybridization conditions to a polynucleotide having a nucleotide sequence identical to a nucleotide sequence in (a), (b), (c), (d), (e) or (f) of claim 1 wherein said polynucleotide which hybridizes does not hybridize under stringent hybridization conditions to a polynucleotide having a nucleotide sequence consisting of only A residues or of only T residues.

3. An isolated nucleic acid molecule comprising a polynucleotide which encodes the amino acid sequence of an epitope-bearing portion of a HOIPS I polypeptide having an amino acid sequence in (a), (b), (c), (d), or (e) of claim 1.

4. The isolated nucleic acid molecule of claim 3, which encodes an epitope-bearing portion of a HOIPS I polypeptide selected from the group consisting of: a polypeptide comprising amino acid residues from about -4 to about 9 of SEQ ID NO:2, a polypeptide comprising amino acid residues from about 13 to about 19 of SEQ ID NO:2, a polypeptide comprising amino acid residues from about 23 to about 32 of SEQ ID NO:2, a polypeptide comprising amino acid residues from about 36 to about 47 of SEQ ID NO:2, a polypeptide comprising amino acid residues from about 54 to about 63 of SEQ ID NO:2, a polypeptide comprising amino acid residues from about 70 to about 74 of SEQ ID NO:2, a polypeptide comprising amino acid residues from about 90 to about 100 of SEQ ID NO:2, a polypeptide comprising amino acid residues from about 105 to about 119 of SEQ ID NO:2, and a polypeptide comprising amino acid residues from about 125 to about 132 of SEQ ID NO:2.

5. An isolated nucleic acid molecule comprising a polynucleotide having a sequence at least 95% identical to a sequence selected from the group consisting of:

(a) the nucleotide sequence of a fragment of the sequence shown in SEQ ID NO:1, wherein said fragment comprises at least 50 contiguous nucleotides of SEQ ID NO:1, provided that said nucleotide sequence is not SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15, or SEQ ID NO:16; and

(b) a nucleotide sequence complementary to a nucleotide sequence in (a).

6. A method for making a recombinant vector comprising inserting an isolated nucleic acid molecule of claim 1 into a vector.

7. A recombinant vector produced by the method of claim 6.

8. A method of making a recombinant host cell comprising introducing the recombinant vector of claim 7 into a host cell.

9. A recombinant host cell produced by the method of claim 8.

10. A recombinant method for producing a HOIPS I polypeptide, comprising culturing the recombinant host cell of claim 9 under conditions such that said polypeptide is expressed and recovering said polypeptide.

11. An isolated HOIPS I polypeptide having an amino acid sequence at least 95% identical to a sequence selected from the group consisting of:

(a) amino acids from about -20 to about 142 in SEQ ID NO:2;
10 (b) amino acids from about -19 to about 142 in SEQ ID NO:2;
(c) amino acids from about 1 to about 142 in SEQ ID NO:2;
(d) the amino acid sequence of the HOIPS I polypeptide having the amino acid sequence encoded by the cDNA clone contained in ATCC Deposit No. 97825;

15 (e) the amino acid sequence of the mature HOIPS I polypeptide having the amino acid sequence encoded by the cDNA clone contained in ATCC Deposit No. 97825; and

(f) the amino acid sequence of an epitope-bearing portion of any one of the polypeptides of (a), (b), (c), (d), or (e).

20 12. An isolated polypeptide comprising an epitope-bearing portion of the HOIPS I protein, wherein said portion is selected from the group consisting of: a polypeptide comprising amino acid residues from about -4 to about 9 of SEQ ID NO:2, a polypeptide comprising amino acid residues from about 13 to about 19 of SEQ ID NO:2, a polypeptide comprising amino acid residues from about 23 to about 32 of SEQ ID NO:2, a polypeptide comprising amino acid residues from about 36 to about 47 of SEQ ID NO:2, a polypeptide comprising amino acid residues from about 54 to about 63 of SEQ ID NO:2, a polypeptide

comprising amino acid residues from about 70 to about 74 of SEQ ID NO:2, a polypeptide comprising amino acid residues from about 90 to about 100 of SEQ ID NO:2, a polypeptide comprising amino acid residues from about 105 to about 119 of SEQ ID NO:2, and a polypeptide comprising amino acid residues from about 125 to about 132 of SEQ ID NO:2.

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13. The isolated polypeptide of claim 11, which is produced or contained in a recombinant host cell.

10 14. The isolated polypeptide of claim 13, wherein said recombinant host cell is mammalian.

15 15. An isolated nucleic acid molecule comprising a polynucleotide encoding a HOIPS I polypeptide wherein, except for one to fifty conservative amino acid substitutions, said polypeptide has a sequence selected from the group consisting of:

15 (a) a nucleotide sequence encoding a polypeptide comprising amino acids from about -20 to about 142 in SEQ ID NO:2;

15 (b) a nucleotide sequence encoding a polypeptide comprising amino acids from about -19 to about 142 in Figure 1 SEQ ID NO:2;

20 15 (c) a nucleotide sequence encoding a polypeptide comprising amino acids from about 1 to about 142 in SEQ ID NO:2;

15 (d) a nucleotide sequence encoding a polypeptide having the amino acid sequence encoded by the cDNA clone contained in ATCC Deposit No. 97825;

25 15 (e) a nucleotide sequence encoding the mature HOIPS I polypeptide having the amino acid sequence encoded by the cDNA clone contained in ATCC Deposit No. 97825; and

15 (f) a nucleotide sequence complementary to any of the nucleotide sequences in (a), (b), (c), (d) or (e).

16. An isolated HOIPS I polypeptide wherein, except for one to fifty conservative amino acid substitutions, said polypeptide has a sequence selected from the group consisting of:

- 5 (a) amino acids from about -20 to about 142 in SEQ ID NO:2;
- (b) amino acids from about -19 to about 142 in SEQ ID NO:2;
- (c) amino acids from about 1 to about 142 in SEQ ID NO:2;
- (d) the amino acid sequence of the HOIPS I polypeptide having the amino acid sequence encoded by the cDNA clone contained in ATCC Deposit No. 97825;
- 10 (e) the amino acid sequence of the mature HOIPS I polypeptide having the amino acid sequence encoded by the cDNA clone contained in ATCC Deposit No. 97825; and
- (f) the amino acid sequence of an epitope-bearing portion of any one of the polypeptides of (a), (b), (c), (d), or (e).